

REMARKS

Claims 1-6 and 14-35 are pending in this application. Claims 7-14 are canceled without prejudice or disclaimer and claims 1, 2, 15, 17, 18, 22-27 and 31 are amended. New claim 35 is added. Reconsideration of the rejections in view of these amendments and the following remarks is respectfully requested.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**Version with Markings to Show Changes Made.**"

(1) Objection to Claims

Claims 1, 2, and 18 were objected to since they include steps withdrawn from consideration due to the restriction requirement.

The claims have been amended to delete "or a reducing agent," which is believed to cure the objection.

(2) Objection to New Matter

Claim 24 was objected to since the amendment filed on August 24, 2001 introduced new matter.

Amendment is made to change "polyamide" into "polyamine," which is believed to cure the

objection. The basis of the amendment is found in original claim 24.

(3) Claim Rejections - 35 U.S.C.112, First Paragraph

(I) Claims 1-3 and 15-24 were rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for purification of vinyl polymers obtained by atom transfer polymerization (ATRP), using the exemplified oxidizing agents, allegedly does not reasonable provide enablement for purifications using the scope of oxidizing agents set forth in the specification and claims.

However, the method of contacting vinyl polymer with an oxidizing agent is described, for example, in page 31 line 5 to page 34, line 22. In addition, several specific examples (Examples 1, 2 and 3) are described in page 61, line 32 to page 62, line 35. Therefore, from the view point of one skilled in the art, undue experimentation would not be required. Reconsideration of the rejection in view of the specification is respectfully requested.

(II) Claim 24 was rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification.

Claim 24 is amended to change "polyamide" into "polyamine," which is believed to overcome the rejection.

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(3) Claim Rejection 35 U.S.C.112, Second Paragraph

Claims 1-3 and 15-24 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 2, 15 and 17 are amended to change "obtainable" into "obtained. Also, claims 22 and 23 are amended to change "the transitional metal catalyst" into "the transitional metal complex." These amendments are believed to overcome the rejections.

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(4) Claim Rejection - 35 U.S.C. 102(b)/103(a)

(I) Claims 1, 3, 18-24 were rejected under 35 U.S.C. 102(b) as anticipated by Roos.

Claim 1 is amended to incorporate a recitation, "having at least one reactive functional group per molecule." The basis of the amendment is found in page 6, lines 5-18 of the specification of the present invention.

Roos does not disclose a vinyl polymer having a reactive functional group. Thus, amended claim 1 is not taught or suggested unsupported by the reference, so reconsideration of the rejection is respectfully requested.

(II) Claims 1-3 and 15-24 were rejected over Roos in view of Nakagawa.

First of all, the mere fact that references can be combined does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. Nakagawa does not suggest the necessity of further purification of the obtained polymer. Nakagawa merely discloses a work-up procedure of polymerization, and does not disclose a specific purification method to remove a transition metal residue. Nakagawa does not provide any suggestion or motivation to carry out a purification process. Roos does not disclose or teach any polymers which can be used for curing by crosslinking reaction. Thus, Roos does not provide any suggestion or motivation to combine it with the teachings of Nakagawa.

Second, prima facie obvious requires a reasonable expectation of success. "Obvious to try" a combination of references does not establish prima facie obviousness.

(5) Objection to Title

The title of the present invention was objected to since it is not descriptive of the claimed invention.

Amendment in the title was made, which is believed to cure the objection.

(5) It is submitted that nothing in the cited references, taken either alone or in combination,

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teaches or suggests all the features recited in each claim of the present invention. Thus, all pending claims are in condition for allowance. Reconsideration of the rejections, withdrawal of the rejections and an early issue of a Notice of Allowance are earnestly solicited.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. The fees for such an extension or any other fees which may be due with respect to this paper, may be charged to Deposit Account No. 01-2340.

Respectfully submitted,

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PATENT TRADEMARK OFFICE

Enclosures: Version with markings to show changes made

IN THE TITLE:

The Title has been amended as follows:

[METHOD FOR] PURIFICATION WITH OXIDIZING AGENTS OF VINYL POLYMERS
OBTAINED BY ATOM TRANSFER RADICAL POLYMERIZATION

IN THE CLAIMS:

Claims **1, 2, 15, 17, 18, 22-27, and 31** have been amended as follows:

1. (Amended) A method for purification of a vinyl polymer having at least one reactive functional group per molecule [obtainable] obtained by the atom transfer radical polymerization of a vinyl monomer using a transition metal complex as a polymerization catalyst,
which comprises bringing said vinyl polymer into contact with an oxidizing agent [or a reducing agent].

2. (Amended) A method for purification of a vinyl polymer having at least one alkenyl group per molecule or an intermediate [obtainable] obtained in the course of production of said vinyl polymer,
which comprises bringing said vinyl polymer or intermediate into contact with an oxidizing agent [or a reducing agent].

15. (Twice Amended) The method for purification according to Claim 2
wherein the vinyl polymer having at least one alkenyl group per molecule is [obtainable]

obtained by the atom transfer radical polymerization of a vinyl monomer using a transition metal complex as a polymerization catalyst.

17. (Amended) The method for purification according to Claim 16

wherein the vinyl polymer having an alkenyl group at the molecular chain terminus is [obtainable] obtained by adding a compound having two or more sparingly polymerizable carbon-carbon double bonds during polymerization or after completion of polymerization in an atom transfer radical polymerization system.

18. (Amended) A method for purification of a vinyl polymer having at least one reactive functional group per molecule for use as a component for a hydrosilylatable composition

which comprises bringing the vinyl polymer into contact with an oxidizing agent [or a reducing agent].

22. (Twice Amended) The method for purification according to Claim 1 or 2

wherein a center metal of the transition metal [catalyst] complex belongs to group 8, group 9, group 10 or group 11 of the periodic table of the elements.

23. (Amended) The method for purification according to Claim 22

wherein the center metal of the transition metal [catalyst] complex is iron, nickel, ruthenium, or copper.

24. (Twice Amended) The method for purification according to Claim 1 or 2 wherein a [polyamide] polyamine compound is used as a catalyst ligand for atom transfer radical polymerization.

25. (Twice Amended) A vinyl polymer as [obtainable] obtained by the method for purification according to Claim 1 or 2.

26. (Twice Amended) A hydrosilylatable composition comprising the vinyl polymer [obtainable] obtained by the method for purification according to Claim 1 or 2.

27. (Twice Amended) A hydrosilylatable composition comprising
(A) an alkenyl group-containing vinyl polymer [obtainable] obtained by the method for purification according to Claim 1 or 2, and
(B) a hydrosilyl group-containing compound.

31. (Twice Amended) A crosslinkable silyl group-containing vinyl polymer [obtainable] obtained by hydrosilylation of the hydrosilylatable composition according to Claim 26.